

## **REMARKS**

### **I. Status of Claims**

Claims 1-6 are pending. Claims 1 and 6 are independent. Applicants note with appreciate the allowance of claim 5 if rewritten in independent form. Applicants respectfully amend claim 5 herein into independent form to place this claim in condition for allowance. Claims 1 and 6 have been amended, and new dependent claims 7-10 are being added to provide a more complete scope of protection. The specification has been amended to correct a typographical error.

### **II. Rejection of Claims 1, 3-4 and 6 under 35 U.S.C. §103(a) over U.S. Patent No. 6,353,637 to Mansour et al (hereinafter "Mansour et al") in view of U.S. Patent No. 5,748,677 to Kumar (hereinafter "Kumar")**

In the Office Action, claims 1, 3-4 and 6 are rejected as being obvious over Mansour et al in view of Kumar.

Regarding independent claim 1, as explained in more detail below, neither Mansour et al nor Kumar discloses or suggests interleaving two broadcast channels transmitted at substantially the same time and having the same data such that bytes in one of the channels are delayed with respect to corresponding bytes in the other one of the two channels. Claims 1 and 6 have been amended herein to more clearly recite that the two broadcast channels are transmitted at substantially the same time and are not transmitted delayed with respect to each other as in a time diversity system.

Claim 1 recites, among other limitations:

- (a) receiving first and second broadcast channels;
- (b) the second broadcast channel comprising substantially the same program content as the first broadcast channel; and

(c) data symbols from a source data stream being arranged in the first and second broadcast channels in accordance with first and second interleaving patterns that are **operable, respectively**, to delay transmission of selected ones of the data bytes in the **first** broadcast channel **and the second** broadcast channel with respect to corresponding ones of the bytes in the **second** broadcast channel **and the first** broadcast channel by a period of time that is selected to reduce service outages.

In other words, the **first** interleaving pattern is operable to delay transmission of selected ones of the data bytes in the **first** broadcast channel with respect to corresponding ones of the bytes in the **second** broadcast channel, and the **second** interleaving pattern is operable to delay transmission of selected ones of the data bytes in the **second** broadcast channel with respect to corresponding ones of the bytes the **first** broadcast channel, by a period of time that is selected to reduce service outages.

The Office Action refers to column 9, lines 55-65 of Mansour et al which discloses that frequency subbands need not be contiguous, can be used to transmit multiple bit streams, and that "interleaving techniques applied to *different* subbands may not be identical (see column 9, lines 58-60 of Mansour et al)." The Office Action admits that Mansour et al does not explicitly teach the first interleaving pattern and the second interleaving pattern being operable to delay transmission as recited in independent claims 1 and 6, and relies on column 4, lines 10-20 of Kumar to purportedly teach these claimed aspects of the present invention. Kumar, however, merely discloses an interleaver 7 (Fig. 1) and corresponding de-interleaver 43 (Fig. 3) for a single source stream. Kumar does not disclose or suggest interleaving two broadcast streams having substantially the same program content such that selected data bytes in one stream are delayed with respect to corresponding data bytes in the other stream.

Further, the Office Action admits that Mansour et al does not explicitly teach transmitting a first broadcast stream comprising program content and a second broadcast stream comprising substantially the same content as set forth in the independent claims 1 and

6. The Office Action relies to column 9, column 20-30 to purportedly suggest this claimed aspect of the invention (i.e., that a subband 103 can be subdivided equally for the transmission of duplicate versions of the C-stream or equivalent C-streams). Assuming that duplicate C-streams in a single subband 103 as disclosed in Mansour et al arguably suggests transmitting a second broadcast stream comprising substantially the same content as a first broadcast stream, interleaving as claimed is not taught by Mansour et al or Kumar. As stated above, Mansour et al discloses at column 9, lines 58-60 thereof that "interleaving techniques applied to *different* subbands may not be identical (emphasis added)" and not different streams in a single divided subband. Further, as stated above, Kumar does not teach interleaving such that corresponding bytes in two channels are delayed with respect to each other.

The Office Action refers to column 2, lines 35-45 and 65-67 of Mansour et al to purportedly suggest modifying the interleaving techniques disclosed therein to implement time diversity by introducing delay between bit streams in different frequency bands and/or within the same frequency band and therefore purportedly render the claimed invention obvious. These sections merely discuss time diversity which is the delayed transmission of an entire bit stream with respect to another entire bit stream. This is exemplified at column 2, lines 65-67 of Mansour et al which state that delay may be introduced between at least a subset of four bit streams, that is, between two or more of the four bit streams, to improve performance in the presence of fading. Delay between bits streams in the same or different bands, however, does not disclose or suggest delay between selected corresponding bytes with respect to each other in two broadcast streams. Claims 1 and 6 have been amended to more clearly recite that the two broadcast channels are transmitted at substantially the same time and are not delayed with respect to each other as in a time diversity system. See page 6, lines 21-23 of the application which states that the first broadcast channel is not delayed with respect to the second broadcast channel.

In view of the above, the 35 U.S.C. §103(a) rejection of claims 1 and 6 is believed to be overcome and therefore withdrawal of this basis for rejecting the claims is respectfully requested. Claims 3 and 4 depend from independent claim 1 and are therefore also believed to be allowable of the applied references for at least the above reasons stated above with respect to claim 1.

**III. Rejection of Claim 2 under 35 U.S.C. §103(a) over Mansour et al in view of Kumar and further in view of over U.S. Patent No. 6,314,127 to Lynch et al (hereinafter “Lynch et al”)**

The Examiner has rejected claim 2 as being obvious over Mansour et al and Kumar in further view of Lynch et al. Lynch et al is merely cited for its teaching of a time delay device 36. Lynch et al, however, does not teach a data storage device comprising a buffer shift register as claimed. For example, claim 1 recites a data storage device adapted to delay **selected** data symbols by a period of time corresponding to transmission delays imposed by **said first interleaving pattern and said second interleaving pattern**. Lynch et al discloses time-delay devices 36 in a receiving system 10 that are “adapted to delay respective input signals by corresponding offset delay durations to produce time-staggered delay signals *with respect to one another*” (emphasis added). Thus, Lynch et al’s time delay devices 36 involve transmission delays associated with entire signals that are received at different times using a diversity antenna system 12. The claimed invention, on the other hand, uses the recited data storage device to delay selected data bytes in one broadcast channel with respect to corresponding ones of the selected bytes in another broadcast channel **by a period of time corresponding to transmission delays imposed on the data bytes by said first and second interleaving patterns**.

In addition, Lynch et al does not overcome the deficiencies stated above with respect to Mansour et al and Kumar.

Finally, the Office Action references the delay element 335 in Mansour et al to purportedly teach or suggest the recited data storage device. The delay element 335 has nothing to do with corresponding bytes between two broadcast channels being delayed with respect to each other. With reference to column 8, lines 3-55 of Mansour et al, the delay element 335 of Mansour et al is used in conjunction with a blending processor 327, as shown in Fig. 3. The blending processor 327 measures data integrity to determine which of the  $E_1$  and  $E_2$  streams are to be blended with the C stream. When a demodulator sends an "exceptional signal" to the blending processor to indicate that the signal to interference ratio (SIR) of its corresponding signal is below a threshold, the blending processor 327 issues a control signal to mute that stream. The delay element 335 is merely used to time align the exceptional signal with the portion of the stream affected by substandard SIR so that it can be properly muted. Thus, the delay element 335 has nothing to do with delayed corresponding bytes between two received streams.

In view of the above remarks, withdrawal of this basis for rejecting claim 2 is believed to be proper and is respectfully requested.

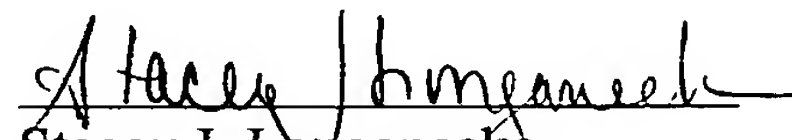
#### IV. Conclusion

In view of the above, it is believed that the above-identified application is in condition for allowance, and notice to that effect is respectfully requested. Should the Examiner have any questions, the Examiner is encouraged to contact the undersigned at the telephone number indicated below.

Respectfully submitted,

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